

REMARKS

Claims 2 – 16 and 18 – 20 are pending in the present Application. Claims 14 and 18 have been amended, and are supported at least at Paragraphs [0023] and [0035]. New Claims 21 – 23 have been added and are supported at least at Paragraphs [0032], [0035], [0041] and [0048] as originally filed. Claims 2 – 16 and 18 – 23 remain for consideration upon entering the present amendment. No new matter has been added.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and following remarks.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 2 – 11, 13, 14, and 16 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6,224,706 to Matich in view of U.S. Patent No. 5,968,629 to Masui et al. Applicants respectfully traverse this rejection.

Matich is relied upon to allegedly disclose a method of forming a layered article “using an air-permeable substrate”. (Office Action dated June 22, 2007, hereinafter “OA 06/07”, Page 2) Because Matich “does not specifically show using a fiber-reinforced plastic material of a specific void content,” (*Id.*) Masui et al. are relied on to allegedly “show that it is known to carry out a method of forming a layered article, wherein the substrate is a fiber-reinforced plastic material having a void content of 50%.” (*Id.*) Hence, it is alleged that it would have been obvious to one of ordinary skill in the art “to use Masui et als’ fiber-reinforced plastic material as the substrate in Matich’s molding process in order to enhance the acoustic absorbing component of the final article...” (OA 06/07, Pages 2 – 3)

The OA contends that Matich “shows the process as claimed.” (OA 06/07, Page 3) Applicants respectfully disagree, as the processes are very different. Specifically, the OA contends,

the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 15 – 30), the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31 – 36); pulling a vacuum through the shaped substrate (Column 4, lines 31 – 35); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31 – 40).

(OA 06/07, Page 2) Applicants note that in Matich, (i) a vacuum is not pulled through the substrate; air is evacuated from between the sheet and the block as the layers are compressed together; (ii) there is no “shaped substrate” until the entire stack of layers have been compressed and cooled, and (iii) no where does Matich pull a film layer onto the substrate; all layers are present at the same time as they are being compressed together. This is evident from the portion relied upon by the OA (Applicants are assuming that when the OA states “Column 15 – 30”, see above quote, that what was meant was Col. 4, lines 15 – 30):

However, during the application of the pressure difference between the sheet 37 and the base plate 2 so as to evacuate the air from between the base plate 2 and the sheet 37, the block 31 conforms to the profile of the former 32.

(Col. 4, lines 21 – 25) Applicants submit that Matich does not show the process as claimed. Matich does not first “form a shaped substrate, wherein the shaped substrate is a fiber-reinforced plastic material having a void content sufficient to allow a vacuum to be applied through the shaped substrate.” (Claim 3) Matich does not pull “a vacuum through the shaped substrate” (Claim 3) and then pull “a film layer onto a surface of the shaped substrate to form the layered article”. (Claim 3) As required, the pending claims must be given their broadest reasonable interpretation consistent with the specification. Here, reading the claims in light of the specification, for example at least at Paragraphs [0032] – [0041], further illustrates the differences between the Matich process and the currently claimed process, differences that have not been taken into account by the OA. Ascertaining the differences between the prior art and the claims at issue requires interpreting the claim

language, and considering both the invention and the prior art references as a whole. (MPEP §2141.02) Applicants respectfully submit that Matich does not show the process as claimed.

Masui et al. are directed to an “acoustic absorbing component comprising a fiber-reinforced thermoplastic resin having a percentage of void being not less than 50 vol %”. (Abstract) The void content is necessary in order to affect the acoustic absorbing performance:

When the percentage of void is not less than 50 vol.%, the acoustic absorbing performance by the resin expanded body is improved. When the percentage of void is not less than 70 vol. %, this tendency becomes more outstanding.

(Col. 7, lines 11 – 15) Applicants respectfully submit that Masui et al. disclose that to enhance acoustic absorbing performance, that it is necessary to have a fiber-reinforced plastic material with a void content of *not less than* 50 vol.%. Hence, one of ordinary skill in the art would not be motivated to take the material of Masui et al. and then use it “as the substrate in Matich’s molding process” (OA 06/07, Page 2), because the molding process of Matich works to “evacuate the air from between the base plate 2 and the sheet 37.” (Col. 4, lines 23 – 24) In doing so, the material is compressed. The OA does not explain how a reference that specifically discloses “removal of the air” (Matich, Col. 3, line 12) would maintain a void content of “not less than 50%.” (Masui et al., Col. 7, line 12) In contrast, it would appear that the acoustic absorbing properties of the material could be lost. Therefore, there can be no motivation to take the material of Masui et al. and use it in the molding process of Matich in order to “enhance the acoustic absorbing component of the final article” (OA 06/07, Pages 2 – 3) as suggested by the OA, because it renders the art unsatisfactory for its intended purpose. MPEP § 2143.01

Considering that the process of Matich and the materials of Masui et al. fail to disclose Applicants’ process and materials, that the only motivation for the combination is derived from Applicants’ claims, especially evident as the combination renders the art inoperable for its intended purpose, a *prima facie* case of obviousness has not been established for independent Claims 3 and 8. If an independent claim is non-obvious

under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) Therefore, Claims 2, 4 – 11, 14, and 16 are also non-obvious over Matich and Masui et al.

In addition, the OA fails to support the various elements of the dependent claims. For example regarding Claims 4 and 5, it is alleged that “Masui shows that it is known to carry out a method wherein the void content is 50 vol.% (Column 2, lines 33 – 35)” (OA 06/07, Page 3) However, Masui discloses “having a percentage of void being *not less than 50 vol%*” (Col. 2, lines 34 – 35 U.S.C. , emphasis added) Claim 4 recites “the void content is about 10 vol.% to about 50 vol.%”, and Claim 5 recites, “the void content is about 25 vol.% to about 50 vol.%”. Claims 4 and 5 recite void content levels that are below 50 vol.%. Applicants submit that Masui teaches away from Applicant’s claims. Masui is improperly relied upon; a *prima facie* case of obviousness has not been established.

Claim 7 recites that the “shaped substrate is foraminated”. The OA alleges that it would be obvious to “use Masui’s foraminated substrate as that during Matich’s molding process in order to enhance the acoustic absorbability of the final product.” (OA 06/07, Page 4) Claims must be read in light of the specification. (MPEP §2111) Applicants disclose, “the term “foraminated” is used throughout this disclosure merely for convenience to discuss systems having holes *other than those formed by a network of cells in fluid communication with each other.*” (Paragraph [0022], *emphasis added*) Hence it was incorrect for the OA to contend that Masui’s expanded resin is “a foamed structure, which is functionally equivalent to a foraminated structure” (OA 06/07, Page 4)

Claim 14 recites “heating the substrate to a temperature sufficient to loft the fibers.” The OA contends that Matich discloses “heating a substrate sheet to a temperature (Column 4, lines 27 – 30)” (OA 06/07, Page 5) However, what is disclosed is “[i]f necessary heat can be applied.” As recited in the Specification, lofting the fibers includes “expanding in the z-direction when heated” (Paragraph [0023]) Nothing in Matich or Masui et al. discloses or suggests that the temperature used is such that will loft the fibers. Applicants respectfully submit that a *prima facie* case of obviousness has not been established as the references have been taken out of context, and not all claim elements have been disclosed.

The dependent claims are novel and non-obvious; they are independently patentable.

Claims 12 and 18 - 20 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Matich and Masui et al. in view of U.S. Patent No. 4,529,641 to Holtrop et al. Applicants respectfully traverse this rejection.

Claim 12, which is dependent upon Claim 3, discloses that “the substrate sheet is thermoformed with a membrane assisted vacuum pressure forming method with a plug assist.” (Claim 12) Here, the OA contends that Holtrop et al. show “a method wherein the substrate sheet is thermoformed with a membrane assisted vacuum pressure forming method with plug assist (Column 5, lines 3 – 5).” (OA 6/07 Page 6) However, all that Holtrop et al. disclose is:

In some instances it is also advantageous to apply vacuum to the mold cavities to assist in expanding non-adhered sections of the foamed thermoplastic.

(Col. 5, lines 3 – 5) Applicants note that (i) Matich teach away from vacuum forming: “this is similar to vacuum forming but is significantly different” (Col. 3, lines 1 – 2), and that (ii), Holtrop et al. are completely silent with regard to a plug assist in the section relied upon, therefore, the combination is not proper. Further, as noted above, Matich does not have a shaped substrate at the time that a vacuum is pulled.

Regarding Claims 18 – 20, the OA again relies on Matich and Masui et al. to allegedly disclose the process, however the OA does not explain what in Holtrop et al. is relied upon for combination with the two references regarding these claims. Specifically, these claims have already been found to be patentable over Holtrop et al. As discussed above, the Matich and Masui et al. references fail to disclose the claimed process and the claimed materials; moreover, the combination is not proper as it renders the art unsatisfactory for its intended purpose. Applicants submit that a *prima facie* case of obviousness has not been established for Claims 12 and 18 – 20, and that they are non-obvious over the art of record.

Claim 15 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Matich, Masui et al., and Holtrop et al., in view of U.S. Patent No. 5,854,149 to Nagayama et al. Applicants respectfully traverse this rejection.

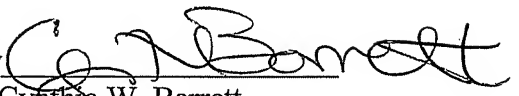
Claim 15, which ultimately depends on Claim 3, is rejected because allegedly, Nagayama et al. disclose that “it is known to carry out a method wherein the heating temperature is 250C (Column 28, lines 57 – 66)” (OA 06/07, Page 7) Applicants submit that in determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. MPEP § 2141.02, citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) Here, the OA relies on a reference simply to disclose a process temperature used in making a “paper-made stampable sheet” (Title). Besides the fact that the present claims have already been found to be allowable over this reference, there is simply no explanation of the motivating force which would lead an artisan to consider the processing temperature of a non-analogous art, and combine it in a vastly different process using a different material. Applicants submit that the only motivation comes from Applicants’ specification, and that a *prima facie* case of obviousness has not been established for Claim 15.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of the rejections and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise,
please charge them to Deposit Account No. 50-3622.

Respectfully submitted,

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